NEW HAMPSHIRE DEPARTMENT OF Environmental Services

**MORPHOMETRIC DATA**

| | | | | | | **TROPHIC CLASSIFICATION** | | **KNOWN EXOTIC SPECIES** |
|---|---|---|---|---|---|---|---|---|
| Watershed Area (Ac.): | 426 | Max. Depth (m): | 2.7 | Flushing Rate (yr¹) | 7.6 | Year | Trophic class | |
| Surface Area (Ac.): | 38 | Mean Depth (m): | 1 | P Retention Coef: | 0.59 | 2004 | MESOTROPHIC | |
| Shore Length (m): | 1,800 | Volume (m³): | 136,500 | Elevation (ft): | 1235 | | | |

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

| Designated Use | Parameter | Category | Comments |
|---|---|---|---|
| Aquatic Life | Phosphorus (Total) | Good | The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay. |
| | pH | Bad | >10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin. |
| | Oxygen, Dissolved | Encouraging | There are < 10 samples with 0 exceedances of criteria. More data needed. |
| | Dissolved oxygen satura | Encouraging | There are < 10 samples with 0 exceedances of criteria. More data needed. |
| | Chlorophyll-a | Very Good | The calculated median is from 5 or more samples and is <= 1/2 indicator. |
| Primary Contact Recreation | Escherichia coli | Very Good | Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria. |
| | Chlorophyll-a | Very Good | There are a total of at least 10 samples with 0 exceedances of indicator. |

**WATERSHED LAND USE SUMMARY**

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.
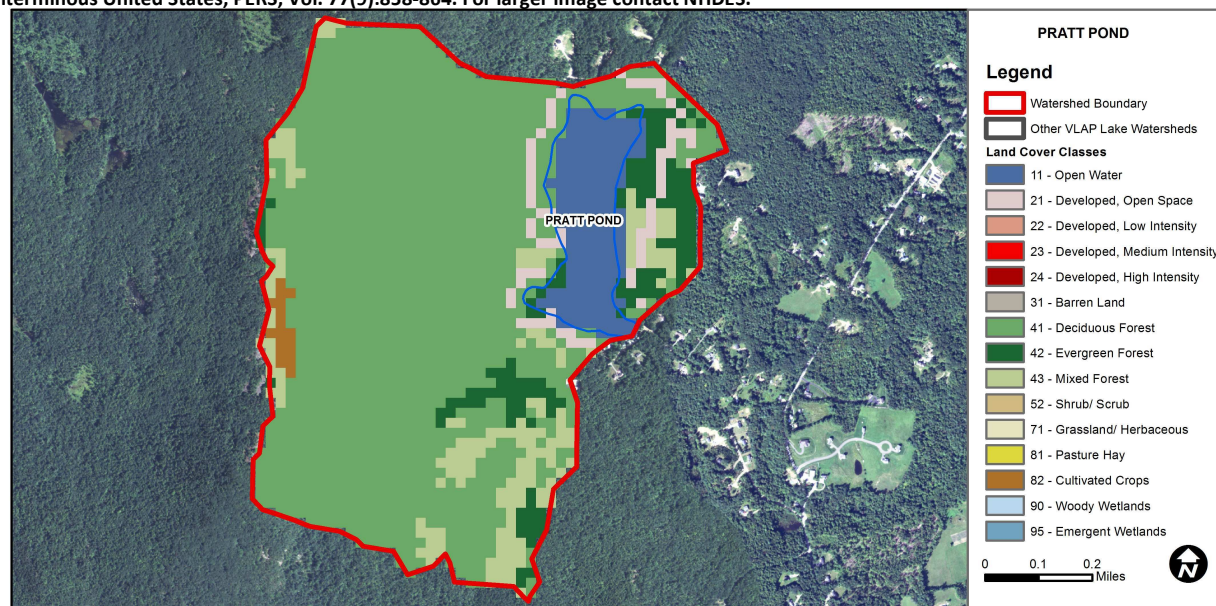


| Land Cover Category | % Cover | Land Cover Category | % Cover | Land Cover Category | % Cover |
|---|---|---|---|---|---|
| Open Water | 8.51 | Barren Land | 0 | Grassland/Herbaceous | 0 |
| Developed-Open Space | 3.71 | Deciduous Forest | 69.89 | Pasture Hay | 0 |
| Developed-Low Intensity | 0 | Evergreen Forest | 7.42 | Cultivated Crops | 0.93 |
| Developed-Medium Intensity | 0 | Mixed Forest | 9.33 | Woody Wetlands | 0 |
| Developed-High Intensity | 0 | Shrub-Scrub | 0 | Emergent Wetlands | 0 |

**OBSERVATIONS AND RECOMMENDATIONS** (*Refer to Table 1 and Historical Deep Spot Data Graphics*)

- **CHLOROPHYLL-A:** The 2014 chlorophyll level was approximately equal to the state median in July and was consistent with that measured in 2012 and 2013. However, historical trend analysis indicates significantly increasing (worsening) chlorophyll since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Epilimnetic and South Inlet conductivity were low and much less than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic phosphorus since monitoring began and we hope to see this continue!
- **E. COLI:** South Inlet E. coli was low and much less than the state standard of 406 cts/100 mL for surface waters and 88 cts/100 mL for public beaches.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus was low in 2014, less than the state median, and was the lowest measured since 2006. Historical trend analysis indicates stable epilimnetic phosphorus levels since monitoring began.
- **TRANSPARENCY:** Transparency was not measured in 2014 and we apologize for the inconvenience. Historical trend analysis through 2013 indicated significantly decreasing (worsening) transparency since monitoring began. This may be a result of water level or the filling in of the pond from sedimentation, and not the increasing algal growth as the Secchi disk is typically visible on the pond bottom.
- **TURBIDITY:** Epilimnetic turbidity was slightly elevated in July potentially due to stormwater runoff from significant rain event prior to sampling. South Inlet turbidity was low.
- **pH:** Epilimnetic and South Inlet pH levels were less than the desirable range of 6.5—8.0 units and potentially critical to aquatic life. However, historical trend analysis indicates significantly increasing (improving) epilimnetic pH since monitoring began. We hope to see this continue!
- **RECOMMENDED ACTIONS:** Increase monitoring frequency to three times per summer, typically June, July and August, to better assess water quality trends and why parameters may be improving or worsening. Consistent management of the pond water level is important. The increased frequency and intensity of storm events, along with the increasing phosphorus and chlorophyll trends, highlights the importance of managing stormwater runoff from surrounding dirt roads and waterfront properties. Efforts should be made to implement stormwater best practices to capture and infiltrate stormwater runoff before it enters streams and the pond. DES' "Homeowner's Guide to Stormwater Management" is a great resource.

**Dissolved Oxygen & Temp Profile July, 2014**
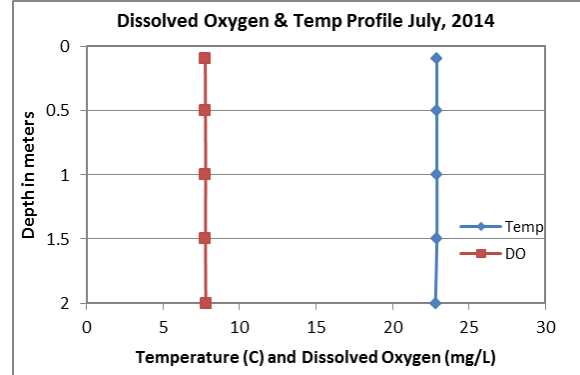


| Station Name | Table 1. 2014 Average Water Quality Data for PRATT POND | | | | | | |
|---|---|---|---|---|---|---|---|
| | Alk. mg/l | Chlor-a ug/l | Cond. uS/cm | E. Coli #/100ml | Total P ug/l | Turb. ntu | pH |
| Epilimnion | 2.0 | 3.14 | 18.1 | | 7 | 1.33 | 6.28 |
| South Inlet | | | 15.6 | 10 | 10 | 0.44 | 5.36 |

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.
**Alkalinity:** 4.9 mg/L
**Chlorophyll-a:** 4.58 mg/m$^3$
**Conductivity:** 40.0 uS/cm
**Chloride:** 4 mg/L
**Total Phosphorus:** 12 ug/L
**Transparency:** 3.2 m
**pH:** 6.6

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
**Chloride:** > 230 mg/L (chronic)
**E. coli:** > 88 cts/100 mL – public beach
**E. coli:** > 406 cts/100 mL – surface waters
**Turbidity:** > 10 NTU above natural level
**pH:** between 6.5-8.0 (unless naturally occurring)

## HISTORICAL WATER QUALITY TREND ANALYSIS

| Parameter | Trend | Explanation | Parameter | Trend | Explanation |
|---|---|---|---|---|---|
| Conductivity | Improving | Data significantly decreasing. | Chlorophyll-a | Worsening | Data significantly increasing. |
| pH (epilimnion) | Improving | Data significantly increasing. | Transparency | Worsening | Data significantly decreasing. |
| | | | Phosphorus (epilimnion) | Stable | Trend not significant; data show low variability. |

**Historical Trend Epilimnetic Conductivity and pH**



**Historical Deep Spot Chlorophyll-a, Epilimnetic Total Phosphorus & Transparency Data**